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P-US082-A-MF

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A process for forming a multilayer three-dimensional structure, comprising:

(a) forming and adhering a layer, comprising a plurality of materials, to a previously formed layer or to a substrate;

(b) repeating the forming and adhering of (a) at least once to build up a three-dimensional structure from a plurality of adhered layers;

wherein the forming of at least one of the plurality of adhered layers, comprises:

(1) obtaining a selective pattern of deposition of a first metal material having at least one void, comprising at least one of:

(a) selectively electrodepositing a first metal material onto a substrate or previously formed layer such that at least one void remains; or

(b) electrodepositing a first metal material onto a substrate or previously formed layer and selectively etching the deposit of the first material to form at least one void therein; and

(2) depositing a second material into the at least one void via a thermal spraying process resulting in a porous deposit of the second material;

(3) infiltrating a third material into at least a portion of pores in the second material, wherein the third material comprises a metal; and

(4) planarizing the first, second and third materials; and

(c) after forming the plurality of layers removing the first metal material from the plurality of layers to reveal the three-dimensional structure.

Claim 2 (canceled).

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Claim 3 (original): The process of claim 1 wherein the thermal spraying process comprises at least one of: (1) an arc wire spraying process, (2) a high velocity oxygen-fuel (HVOF) spraying process, (3) a plasma spraying process, (4) a plasma transferred arc (PTA) spraying process, (5) a vacuum or low pressure plasma spraying process, (6) a low velocity oxygen-fuel (LVOF) spraying process, (7) a detonation thermal spraying process, (8) a high velocity particle consolidation (HVPC) spraying process, (9) a wire spraying process, or (10) an ion plating process.

Claim 4 (canceled).

Claim 5 (currently amended): A process for forming a multilayer three-dimensional structure, comprising:

(a) forming and adhering a layer, comprising a plurality of materials, to a previously formed layer or to a substrate;

(b) repeating the forming and adhering of (a) at least once to build up a three-dimensional structure from a plurality of adhered layers;

wherein the forming of at least one of the plurality of adhered layers, comprises:

(1) obtaining a selective pattern of deposition of a first metal material having at least one void, comprising at least one of:

(a) selectively electrodepositing a first metal material onto a substrate or previously formed layer such that at least one void remains; or

(b) electrodepositing a first metal material onto a substrate or previously formed layer and selectively etching the deposit of the first material to form at least one void therein; and

(2) depositing a second material into the at least one void via a thermal spraying process; and

(c) after forming the plurality of layers removing the first metal material from the plurality of layers to reveal the three-dimensional structure.

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~~The process of claim 1~~ wherein after depositing via a thermal spraying process, during the forming of at least one layer, performing at least one subsequent operation so that ~~at least one of: (i) modification of the second material occurs, or (ii)~~ enhanced adhesion between the second material deposited in association with the at least one layer and material deposited in association with another layer occurs.

Claim 6 – 22 (canceled).

Claim 23 (previously presented): The process of claim 1 wherein the forming of at least one of the plurality of adhered layers comprises forming of at least two layers of the plurality of adhered layers.

Claims 24 – 28 (canceled).